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Claims

We claim:

1. Vinyl acetate based polymer latex composition obtained by emulsion polymerization of:

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(a) polyvinyl alcohol,

(c) a monomer mixture comprising vinyl acetate, and (d) optionally one or more additional co-monomer(s),

in presence of (c) 0.0001-0.05 wt.% of a chain transfer agent, based on total monomer weight, said vinyl acetate based polymer latex composition having a weight average particle size ≥ 400 nm and a higher shear thinning factor than the vinyl acetate based polymer latex composition (a), (b) and (d) obtained in the absence of the chain transfer agent (c).

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2. Composition according to claim 1, wherein emulsion polymerization is carried out in presence of 0.001 to 0.05 wt.% of a chain transfer agent selected from the group consisting of aldehydes and chain transfer agents having a similar chain transfer constant with regard to vinyl acetate as the monomer.

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3. Composition according to claim 1, wherein emulsion polymerization is carried out in presence of 0.0001 to 0.01 wt.% of a chain transfer agent selected from the group consisting of thiols, mercapto acids, and chain transfer agents having a similar chain transfer constant with regard to vinyl acetate as the monomer.

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4. Composition according to claim 1, having a shear thinning factor of about 1,2 to 3,5 times the shear thinning factor of a latex composition obtained in absence of the chain transfer agent or wherein the shear thinning factor is shifted from negative values to positive values.

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5. Composition according to claim 1, wherein the latex weight average particle size is about 60 to 95 % the weight average particle size of a latex composition obtained in the absence of the chain transfer agent.

5 6. Composition according to claim 1, wherein the chain transfer agent is selected from the group consisting of C₂₋₅-aldehydes, C₂₋₅-thiols, C₂₋₅-mercaptoacids, and mixtures thereof.

10 7. Composition according to claim 2, wherein the chain transfer agent is selected from the group consisting of croton aldehyde, propion aldehyde, and mixtures thereof.

15 8. Composition according to claim 3, wherein the chain transfer agent is selected from the group consisting of 2-mercapto propionic acid, 3-mercapto propionic acid, and mixtures thereof.

9. Composition according to claim 1, wherein the amount of vinyl acetate is in the range of 100 wt.% to 60.00 wt.%, based on total monomer weight.

20 10. Composition according to claim 1, wherein the polyvinyl alcohol has a degree of hydrolysis from 60 to 99 mole-% and is present in an amount of 3 wt.% to 12 wt.%, based on total monomer weight.

25 11. Composition according to claim 1, wherein the vinyl acetate based polymer latex composition further comprises one or more co-monomers selected from the group consisting of one or more vinyl ester(s), other than vinyl acetate, one or more post-crosslinking monomer(s), one or more ethylenically unsaturated acid(s) or anhydride(s) thereof, one or more acrylic monomer(s), and mixtures thereof.

30 12. Composition according to claim 11, wherein the one or more vinyl ester(s) are selected from the group consisting of vinyl propionate, vinyl pivalate, vinyl 2-ethyl hexanoate, diisopropyl maleate, diisopropyl fumarate, versatic acid vinyl esters having 9 to 10 carbon atoms from the carbonic acid group, and mixtures thereof, the one or more addi-

tional vinyl ester(s) being present in an amount of up to 40 wt.%, based on total monomer weight.

13. Composition according to claim 11, wherein the one or more post-crosslinking monomer(s) are selected from N-alkoyl derivatives of an amide of a α,β -ethylenically unsaturated carboxylic acid.

14. Composition according to claim 13, wherein the post-crosslinking monomer is N-methylol acrylamide.

15. Composition according to claim 8, wherein the vinyl acetate based polymer latex composition is a copolymer of vinyl acetate/N-methylol acrylamide, optionally further including versatic acid vinyl ester having 9 to 10 carbon atoms from the carbonic acid group.

16. Process of manufacture of a vinyl acetate based polymer latex composition having a weight average particle size ≥ 400 nm, including emulsion polymerization of vinyl acetate in the presence of polyvinyl alcohol, optionally together with one or more additional comonomer(s), wherein the emulsion polymerization is carried out in the presence of 0.0001 wt.% to 0.05 wt.% chain transfer agent, based on total monomer weight.

17. Process according to claim 16, wherein emulsion polymerization is carried out in presence of 0.001 to 0.05 wt.% of a chain transfer agent selected from the group consisting of aldehydes and chain transfer agents having a similar chain transfer constant with regard to vinyl acetate as the monomer.

18. Process according to claim 16, wherein emulsion polymerization is carried out in presence of 0.0001 to 0.01 wt.% of a chain transfer agent selected from the group consisting of thiols, mercapto acids, and chain transfer agents having a similar chain transfer constant with regard to vinyl acetate as the monomer.

19. Process according to claim 17, wherein the chain transfer agent is selected from the group consisting of croton aldehyde, propion aldehyde or mixtures thereof.

20. Process according to claim 18, wherein the chain transfer agent is selected from the group consisting of 2-mercapto propionic acid, 3-mercapto propionic acid or mixtures thereof.

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21. Process according to claim 16, wherein the vinyl acetate based polymer is a copolymer of vinyl acetate/N-methylol acrylamide, optionally further including versatic acid vinyl ester having 9 or 10 carbon atoms from the carbonic acid group, and the chain transfer agent is mercapto propionic acid.

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22. Adhesive, comprising the vinyl acetate based polymer latex composition according to claim 1.

23. Adhesive, comprising the vinyl acetate based polymer latex composition according to claim 15.

24. Adhesive according to claim 22, for use in paper and packaging, comprising a vinyl acetate homopolymer latex composition.

25. Adhesive according to claim 23 for use as a wood glue.